CLAIMS

1. A flexible oro-nasal mask for mounting in a rigid shell attached to a helmet of aircrew at a fixed distance therefrom, the flexible oro-nasal mask comprising an inspiratory and expiratory valve and a periphery of the mask being adapted to make a seal with a wearer's face, the oro-nasal mask comprising: an extendable means operable to press the periphery of the mask automatically towards the wearer's face to improve the seal therewith when gas at a pressure above that for normal breathing is supplied to the mask and the extendable means reconfigures as a result thereof, the extendable means being configured so that when the gas is supplied to an interior of the mask, a portion thereof in a bottom region of the mask extends more than a portion in an upper region of the mask so that the bottom of the mask is moved away from the wearer's face by a greater amount in a chin region of the wearer's face than in the nose region of the wearer's face, whereby the mask is capable of pivoting upwardly automatically to compensate for effects of G forces.

2. The mask as claimed in claim 1, wherein the extendable means comprises an annular inwardly directed re-entrant recess formed in a wall of the mask adjacent the periphery, a depth of said recess in the bottom half of the mask being greater than a depth in the top half thereof.

3. The mask as claimed in claim 2, wherein the re-entrant recess is V-shaped and comprises an inwardly directed flange on a front portion of the mask which is attached to a correspondingly dimensioned inwardly directed flange adjacent the periphery on a separate rear portion of the mask.

4. The mask as claimed in claim 1, wherein the extendable means comprises a plurality of annular inwardly directed recesses formed in a wall of the mask to provide a bellows therein.

5. The mask as claimed in claim 1, wherein a wall of the mask includes a convoluted rolling section, a thickness of the mask wall in a region of the convoluted rolling section being less than a thickness of the mask in a remainder of the mask thereby allowing the mask to be rolled back on itself into an S-shaped configuration.

6. A breathing apparatus for use with a helmet, comprising:

(A) a rigid shell;

(C) an inspiratory valve; and

(B) a flexible oro-nasal mask coupled to the rigid shell and coupled to the inspiratory valve, and having a chin region, a nose region, and a periphery adapted to make a seal with a human face, the flexible oro-nasal mask being adapted to reconfigure as a result of gas at a pressure above that for normal breathing being supplied to an interior of the mask through the inspiratory valve, such that a portion of the oro-nasal mask in the chin region extends further from the helmet than a portion of the oro-nasal mask in the nose region;

whereby the periphery automatically presses against a wearer's face to improve the seal therewith, and the mask pivots upwardly automatically to compensate for the effects of G forces.

7. The breathing apparatus as claimed in claim 6, wherein the flexible oro-nasal mask comprises an annular inwardly directed re-entrant recess formed in a wall of the mask adjacent the periphery, a depth of said recess in a bottom half of the mask being greater than a depth in a top half thereof.

8. The breathing apparatus as claimed in claim 7, wherein the re-entrant recess is V-shaped and comprises an inwardly directed flange on a front portion of the mask which is attached to a correspondingly dimensioned inwardly directed flange adjacent the periphery on a separate rear portion of the mask.

9. The breathing apparatus as claimed in claim 6, wherein the flexible oro-nasal mask comprises a plurality of annular inwardly directed recesses formed in the a wall of the oro-nasal mask to provide a bellows therein.

10. The breathing apparatus as claimed in claim 6, wherein a wall of the oro-nasal mask includes a convoluted rolling section, a thickness of the oro-nasal mask wall in a region of the convoluted rolling section being less than a thickness of a remainder of

the mask thereby allowing the mask to be rolled back on itself into an S-shaped configuration.

11. The breathing apparatus of claim 6, further comprising an attachment to maintain the mask a fixed distance from the helmet.